CLAIMS

1. (Presently Amended) A device for measuring vibration in an article having a rotating member, the device comprising:

a motion sensitive transducer attachable to the article comprising an output producing a time domain analog signal in response to the vibration;

an analog-to-digital data acquisition member comprising an input connected to the transducer output for sampling the transducer signal and comprising an output producing a time domain digital signal from the sampling;

~~a timing~~ an optic sensor, responsive to a target feature on the rotating member, adapted to detect an instantaneous speed of the rotating member and trigger ~~triggering~~ the data acquisition member to begin sampling when the rotating member is rotating; and

a processor comprising an input connected to the data acquisition member output for translating the time domain digital signal to a frequency domain digital signal and determining the magnitude and phase of the vibration signal at a frequency associated with the instantaneous speed of the rotating member.

2. (Presently Amended) The device of claim 1 wherein the processor further ~~comprises a comparator determining~~ determines whether a ~~the~~ magnitude of the vibration signal at a ~~the~~ frequency associated with the instantaneous speed of the rotating member is greater than a preselected threshold.

3. (Presently Amended) The device of claim 1 wherein the instantaneous speed is associated with a transient start up state of the article's rotating member and is less than an ~~the~~ operating speed of the rotating member.

4. (Original) The device of claim 1 comprising two transducers producing simultaneous vibration signals from different planes.

5. (Original) The device of claim 4 wherein the transducers are positioned orthogonally.

6. (Canceled).

7. (Presently Amended) The device of claim 1 wherein the processor performs a Fourier transform in translating the digital signal from a ~~the~~ time domain to a ~~the~~ frequency domain.

8 - 20. (Canceled)

21. (New) A device for measuring vibration in an article having a rotating member, the device comprising:

a motion sensitive transducer attachable to the article comprising an output producing an analog signal in response to the vibration;

an analog-to-digital data acquisition member comprising an input connected to the transducer output for sampling the transducer signal and comprising an output producing a digital signal from the sampling;

an optic sensor, responsive to a target feature on the rotating member, adapted to detect an instantaneous speed of the rotating member; and

a processor comprising an input connected to the data acquisition member output for processing the digital signal.

22. (New) The device of claim 21 wherein the optic sensor is adapted to trigger the data acquisition member to begin sampling when the rotating member is rotating.

23. (New) The device of claim 21 wherein the processor further determines whether a magnitude of the vibration signal at a frequency associated with the instantaneous speed of the rotating member is greater than a preselected threshold.

24. (New) The device of claim 21 wherein the instantaneous speed is associated with a transient start up state of the article's rotating member and is less than an operating speed of the rotating member.

25. (New) The device of claim 21 comprising two transducers producing simultaneous vibration signals from different planes.

26. (New) The device of claim 25 wherein the transducers are positioned orthogonally.

27. (New) The device of claim 21 wherein the processor further translates the digital signal to a frequency domain digital signal and determines the magnitude and phase of the vibration signal at a frequency associated with the instantaneous speed of the rotating member.

28. (New) The device of claim 27 wherein the processor reduces erroneous vibration readings by filtering the frequency domain signal.

29. (New) The device of claim 21 wherein the rotating member is a data storage surface for a data storage device.

30. (New) The device of claim 29 wherein the data storage device is a disc drive.